SHNEPERMAN, L.B.

Semigroups of continuous transformations. Dokl.AN SSSR 144
no.3:509-511 My '62.   (MIRA 15:5)

1. Leningradskiy gosudarstvennyy pedagogicheskiy institut im.
A.I.Gertsena. Predstavleno akademikom A.I.Mal'tsevym.
   (Groups, Theory of)   (Transformations (Mathematics))

SHNEPERMAN, L.B.

Subgroups of continuous transformations and homeomorphisms of
a simple arc. Dokl. AN SSSR 146 no.6:1301-1304 O '62.

1. Leningradskiy gosudarstvennyy pedagogicheskiy institut
im. A.I. Gertsena. Predstavleno akademikom A.I. Mal'tsevym.
        (Groups, Theory of) (Topology)

SHNEIPERMAN, L.B.

Images of continuous transformations of topological spaces.
Sib. mat. zhur. 6 no.1:221-229 Ja-F '65.

(MIRA 18:4)

SHNEPERMAN, L.B.

Universal bicompact topological semigroups. Usp. mat. nauk
20 no.6:184-187 N-D '65.   (MIRA 18:12)

1. Submitted March 30, 1965.

SHNEPERMAN, L.B. (Barnaul)

Semigroups of continuous transformations of closed number
line sets. Izv.vys.ucheb.zav.; mat. no.6:166-175 '65.
(MIRA 19:1)

1. Submitted March 27, 1964.

SHNEPP, V.B., inzh.; SOLOPOV, N.Ya., inzh.

High-pressure circulation centrifugal compressor. Khim. i neft.
mashinostr. no.1:8-10 Jl '64.   (MIRA 17:12)

SHNEPS, M. A., DAMBITIS, Ya. Ya., and ARIN', E. I.

"On Self-Organizing Systems"

presented at the All-Union Conference on Computational Mathematics and
Computational Techniques, Moscow, 16-28 November 1961

BASHARIN, G.P.; SHNEPS, M.A.

    Survey of recent work in the field of telephone communication.
Elektrosviaz' 17 no.5:41-48 My '63.   (MIRA 16:4)
                                (Telephone)

SHNEPS, M.A.

Study of single-stage partially accessible telephone systems
using an electronic computer. Probl. pered. inform. no.12:
109-123 '63.

Use of Markoff chains in studying telephone systems with losses.
Ibid.:124-134

(MIRA 17 10)

L 21346-65   EWT(d)/T/EWP(1)   IJP(c)

ACCESSION NR: AR4041533   S/0044/64/000/005/V063/V064

SOURCE: Ref. zh. Matematika, Abs. 5V390

AUTHOR: Shneps, M. A.

TITLE: On the application of the method of imbedded Markov chains to the design of systems of mass serving with losses. (Engl. summary)

CITED SOURCE: Uch. zap. Latv. un-t, v. 47, 1963, 261-266

TOPIC TAGS: imbedded Markov chain, mass serving, loss

TRANSLATION: The author considers a system of mass serving with losses. The intervals between calls are independent random variables with distribution function $F(x)$, the serving times are independent and distributed according to an exponential law (with parameter 1.) The calls act on a commutation system with n entrances b_i ($i=1, 2, \ldots, n$) and v exits. The call next in turn is made at entrance b_j, with probability a_i ($i = 1, 2, \ldots, n$). The set of exits is divided into n non-

Card 1/3

L 21346-65
ACCESSION NR: AR4041533 O

intersecting sub-sets L_i ($i = 1, 2, \ldots, n$). If at the moment of arrival of a call at
entrance b_i there are free lines in the set L_i, then one of these is offered for
serving the arriving call; if there is no free line in L_i, the call is lost. A short
description of a program for the design of such systems is given. Let the calls
arrive at moments $\tau_1, \tau_2, \ldots, \tau_n \ldots$ The state of the system immediately before
and after arrival of the call next in turn is examined:

$$\eta_n^- = \eta(\tau_n - 0) \quad , \quad \eta_n^+ = \eta(\tau_n + 0)$$

where $\eta(t)$ is the state of the system at time t. The author does not mention any-
where what is meant by the state of the system at time t. Apparently, $\eta(t)$ is a
vector $(\eta_1(t), \eta_2(t), \ldots, \eta_n(t))$, where $\eta_i t (i=1, 2, \ldots, n)$ is the number of busy
lines at the exit of the commutation system belonging to subset L_i. The author
asserts that under exponential serving the number and distribution of busy outlets
at moments $\tau_n - 0$, $\tau_n + 0$ ($n = 1, 2, \ldots$) (printed η_n^- and η_n^+) completely determine
the state of the system. This is true only in the sense that the sequence $\{\zeta_k\}$
($k = 1, 2, \ldots$), where $\zeta_{2n-1} = \eta_n^-$, $\zeta_{2n} = \eta_n^+$ ($n = 1, 2, \ldots$) is a Markov chain, but
in general for fixed t $\eta(t)$ does not coincide with any η_n^+ or η_n^- ($n = 1, 2, \ldots$)
and the limit distribution $\eta(t)$ as t $\longrightarrow \infty$ does not coincide with the limit distri-

Card 2/3

L 21346-65
ACCESSION NR: AR4041533

O

bution of the process being designed. (R. Zh. Mat, 1961, 7B189). The two algorithms given, algorithm A for occupancy and algorithm B for disengagement, are nothing but a description of the transition from ζ_{2n-1} to ζ_{2n}, and from ζ_{2n} to ζ_{2n+1}, respectively. The quantity introduced is $\eta_n = \eta_1(\tau_n + 0) + \eta_n \cdot (\tau_n + 0)$. (Abstractor note: there seem to be misprints in the abstract).

SUB CODE: MA   ENCL: 00

Card 3/3

SHEFES, M.A.

One generalization of Erlangs formula for a nonuniform flow.
Probl. pered. inform. no.17:103-105 '64.

(MIRA 17:11)

SEIDOL, Ya.Ya.; SHNEPS, M.A.

Some qualitative studies of limitedly available systems. Probl. pered. inform. 1 no.2:87-94 '65.   (MIRA 18:7)

L 46043-66

ACC NR: AT6034087   SOURCE CODE: HU/2502/65/044/003/0267/0276

AUTHOR: Schneer-Erdey, Anna--Shner-Erdei, A.; Toth, Tibor--Tot, T.

ORG: Institute of General and Inorganic Chemistry, Eotvos Lorand University (Eotvos Lorand Tudomanyegyetem, Altalanos es Szervetlen Kemiai Intezet); Research Group of Inorganic Chemistry, Hungarian Academy of Sciences, Budapest (Magyar Tudomanyos Akademia, Szervetlen Kemiai Kutatocsoport)

TITLE: Chromatometric determination of anthranilic acid by total wet oxidation according to an equivalent weight ratio of 1 : 28

SOURCE: Acta chimica academiae scientiarum Hungaricae, v. 44, no. 3, 1965, 267-276

TOPIC TAGS: organometallic compound, chromate

ABSTRACT: As seen by the experimental results, anthranilic acid undergoes oxidation with sodium dichromate, in a medium of concentrated sulfuric acid at 115° within 40 minutes, in a stoichiometric reaction with the formation of water, carbon dioxide and ammonia. The mixture used for the moist combustion can also be used as a standard solution. When the solution is diluted at the end of the reaction, the excess chromium(VI) in it can be titrated with iron(II) in the presence of ferroin as indicator. When an 0.5 per cent correction is applied for the spontaneous decomposition of chromium(VI) solution not consumed in the oxidation, the titration values for anthranilic acid and for metal anthranilates agree within ± 0.2 per cent. One ml of 0.1 N sodium dichromate corresponds to 0.4898 mg of anthranilic acid or $M/650$*mg of divalent metals. *M = molecular wt. The authors thank Professor, Doctor B. Lengyel for his participation in the experimental work. Orig. art. has: 1 figure and 6 tables. [Based on authors' Eng. abst.] [JPRS: 33,540]

SUB CODE: 07 / SUBM DATE: 30Jul64 / ORIG REF: 007 / OTH REF: 007
Card 1/1

L 46175-66   EWT(m)/EWP(w)/EWP(f)/EWP(v)/T-2/EWP(k)   IJP(c)   MW/EM

ACC NR: AP6021934 (N)   SOURCE CODE: UR/0143/66/000/003/0062/0068

AUTHOR: Moiseyev, A. A. (Doctor of technical sciences, Professor); Topunov, A. M. (Candidate of technical sciences); Shnitser, G. Ya. (Engineer); Myachin, Ye. V. (Engineer); Kulesh, Yu. N. (Engineer)

ORG: Leningrad Shipbuilding Institute (Leningradskiy korablestroitel'nyy institut)

TITLE: Effect of the form of the bounding surfaces of the flow through section on the working process of a turbine stage

SOURCE: IVUZ. Energetika, no. 3, 1966, 62-68

TOPIC TAGS: hydrodynamic theory, turbine stage, turbine design

ABSTRACT: One of the main factors determining the end losses in a turbine is the amount of overlap between stages. The present article gives the results of an investigation of the effect of the overlap at the point of the blades on the overall characteristics and on the structure of the three dimensional flow in the stages of a marine turbine. Experiments were carried out with various geometries of the system; the results are shown in tabular and graphic form. In general, the following conclusions were drawn: 1) the positive overlap before

Card 1/2   UDC: 621.165

ACC NR: AP6021934

the turbine jet unit and the gap between the overlap and the entry edges
of the blades have a rather strong effect on the efficiency and other
overall characteristics of the turbine stages. It is shown that losses
due to overlap can exceed losses due to sudden expansion of the flow;
2) the fact that the observed effect of positive overlap was greater
than in previous investigations is attributed to the presence of a
conical outer bounding surface and to the absence of twist in the
working blades; 3) the effect of the overlap and of the gap increases
with an increase in the relative length of the blades; 4) the discharge
coefficient decreases with an increase in the overlap and a decrease in
the gap; this is explained by an increase of the losses in the jet
nozzle unit; 5) a change in the axial gap has practically no effect on
the nature of the effect of the overlap. Orig. art. has: 5 figures
and 1 table.

SUB CODE: 13,20   / SUBM DATE: 01Jul65/ ORIG REF: 003 ´

Card 2/2   mt

RUBTSOVA, I.K.; SHNER, S.M.

      Interaction of aryl- and diarylchlorophosphates with alpha-oxides.
      Plast. massy no.12:23-24 '62.   (MIRA 16:1)
              (Oxides) (Phosphorus organic compounds)

L 8868-66   EWT(m)/EWP(j)   WW/RM

ACC NR: AP5025955   SOURCE CODE: UR/0190/65/007/010/1684/1688

AUTHOR: Shner, S. M.; Rubtsova, I. K.; Gefter, Ye. L.

ORG: Scientific Research Institute of Plastics (Nauchno-issledovatel'skiy institut plasticheskikh mass)

TITLE: Investigation of conversions of di-(beta-chloroethyl)phosphite and its derivatives. Report No. 1. Homopolycondensation of di-(beta-chloroethyl) phosphite and di-(beta-chloroethyl) chlorophosphate

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 10, 1965, 1684-1688

TOPIC TAGS: organic phosphorus compound, polycondensation, chlorination, polyester plastic, CHLORINATED ORGANIC COMPOUND

ABSTRACT: The homopolycondensation, heretofore not described in the literature, of di-(beta-chloroethyl) phosphite (A) and of di-(beta-chloroethyl chlorophosphate (B) was studied. Phosphorus-containing polyesters were synthesized from A and from B by thermal homopolycondensation upon elimination of dichloroethane. Reaction of A proceeded most smoothly at 205-207° to give a polyester yield of 99.4% in 6-7 hours. B is best reacted at 186-188° for 2.5 hours. Chlorina-

Card 1/2   UDC: 678.674

L 6063-66

ACC NR: AP5025955

tion of a polyester based on A gave the polymeric chloroanhydride of A.
L. P. Bocharova participated in the experimental work. Orig. art. has:
4 tables and 4 equations.

SUB CODE: OC/ SUBM DATE: 30Oct64/ ORIG REF: 006/ OTH REF: 003

Card 2/2

A   L 11518-66 · EWT(m)/EWP(j)   WW/RM

ACC NR: AP6001869   SOURCE CODE: UR/0190/65/007/012/2142/2145

AUTHORS: Shner, S. M.; Rubtsova, I. K.; Gefter, Ye. L.

ORG: Scientific Research Institute for Plastics (Nauchno-issledovatel'skiy institut plasticheskikh mass

TITLE: Synthesis and homopolycondensation of di-β, β'-chloroethyl ester of oxymethylphosphonic acid. 2nd communication in the series, Investigation of transformation of di-β, β' – chloroethylphosphine acid and its derivatives

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2142-2145

TOPIC TAGS: polymer, polymerization, polymerization rate, polymerization kinetics, polymerization degree, polyester, ether, phosphinic acid, phosphonic acid, ester, polycondensation, organic synthetic process

ABSTRACT: Further work is reported on the properties and transformations of di-β - β'-chloromethylphosphinic acid, previously reported by S. M. Shner, I. K. Rubtsova, and Ye. L. Gefter (Vysokomolek. soyed., 7, 1684, 1965). The synthesis of di-β - β'-chloroethyl ester of oxymethyl phosphinic acid was carried out according to the general method of V. S. Abramov (Dokl. AN SSSR, 73, 487, 1950) by the reaction of the acid with formaldehyde. The thermal homopolycondensation of the synthesized ester was studied. The homopolycondensation yielded a phosphorus-containing polyester and a low-molecular fraction consisting of dichloroethane, ethylenechlorohydrine, and di-β, β'-chloroethyl ether. The effect of temperature on the yield of polyester

Card 1/2   UDC: 541.64+678.86

L 11518-66

ACC NR: AP6001869

was determined (see Fig. 1). The effects of temperature and of the heating on
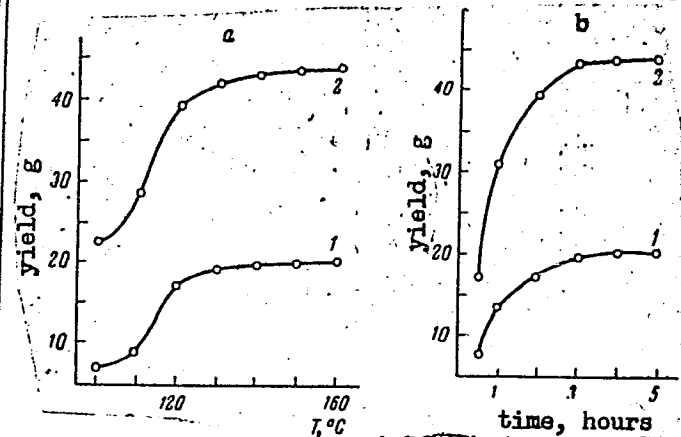

Fig. 1. Dependence of the yield of the low-molecular fraction (1) and polyester (2): a - on the temperature during homopoly-condensation of 65 g of ester for 3 hours at 20 mm Hg; b - on the duration of reaction during homo-polycondensation of 65 g of ester at 140C and 20 mm Hg.

the viscosity of the polyester were studied, and the results tabulated. A reaction mechanism for the homopolycondensation of the ester is proposed. L. P. Bocharova participated in the experimental work. Orig. art. has: 1 table, 1 graph, and 3 equations.

SUB CODE: 0711/ SUBM DATE: 27Jan65/ ORIG REF: 006/   OTH REF: 003

Card 2/2

L 41355-66   EWT(m)/T/EWP(j)   IJP(c)   WW/RM

ACC NR: AP6025620

SOURCE CODE: UR/0413/66/000/013/0076/0076

AUTHORS: Kirilovich, V. I.; Shner, S. M.; Rubtsova, I. K.; Rabkina, A. E.; Tikhonova, M. A.

ORG: none

TITLE: A method for hardening epoxy resins. Class 39, No. 183379 /announced by Scientific Research Institute of Plastics (Nauchno-issledovatel'skiy institut plasticheskikh mass)_/

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 76

TOPIC TAGS: epoxy plastic, curing agent, polyester plastic, fire resistant material, organic phosphorus compound, resin, hardening

ABSTRACT: This Author Certificate presents a method for hardening epoxy resins by phosphorus-containing hardeners./ To increase the fire resistance of the polymers, phosphorus-containing polyesters with a reactive hydrogen atom at the phorus atom are used as hardeners. These polyesters have the general formula,

Card 1/2

UDC: 678.643.028.294:678.85

L 41375-66

ACC NR: AP6025620

$$R-[-O-\overset{\overset{O}{\|}}{\underset{H}{P}}-OR']_n X,$$

where $n = 3-50$; $X = -Cl$, $-OH$; $R = -CH_3$, $-C_2H_5$, $-C_2H_4Cl$; $R' = -(CH_2)_m$, where $m = 2-10$,

$$-CH_2-\overset{\overset{CH_2OH}{|}}{\underset{CH_2OH}{C}}-CH_2-\ ;$$

$$-\bigcirc-\overset{\overset{CH_3}{|}}{\underset{CH_3}{C}}-\bigcirc-\ ;$$

$$-CH_2-\overset{\overset{CH_2OH}{|}}{\underset{CH_3}{C}}-CH_2-\ .$$
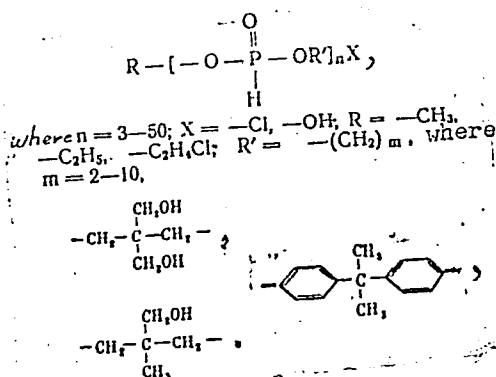
A formula for determining the amount of hardener needed is given. Orig art.
has: 2 formulas.   [04]

SUB CODE: 11/ SUBM DATE: 08Apr65/ ATD PRESS: 5058

Card 2/2 11b

ACC NR: AP6023433   SOURCE CODE: UR/0190/66/008/007/1279/1282

AUTHOR: Shner, S. M.; Rubtsova, I. K.; Gefter, Ye. L.

ORG: Scientific Research Institute of Plastics (Nauchno-issledovatel'skiy institut plasticheskikh mass)

TITLE: Kinetics and mechanism of homopolycondensation of di-β, β'-chloroethylphosphorous acid

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 7, 1966, 1279-1282

TOPIC TAGS: polycondensation, phosphorous acid, organic phosphorus compound

ABSTRACT: The kinetics of homopolycondensation of di-β, β'-chloroethylphosphorous acid were studied at 195, 200, 205, and 210°C without a solvent in a stream of dry nitrogen, and the 1,2-dichloroethane evolved (from which the extent of the reaction was calculated) was driven off continuously. The reaction was shown to be first order. Its initial stage consists of an intramolecular conversion, which proceeds via cyclic intermediates and involves a circular electron transfer in accordance with the following hypothetical mechanism:
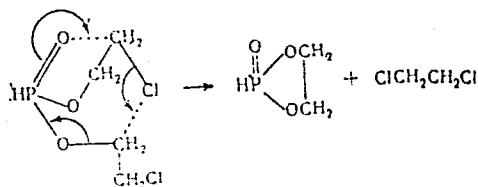
UDC: 541.64+678.86

Card 1/2

ACC NR: AP6023433

The rate constants of the reaction were calculated, and its activation energy was found to be 15.4 ± 2.0 kcal/mole. The products, in addition to 1,2-dichloroethane, were polyester chains formed by the opening of the unstable cyclic intermediates. Orig. art. has: 3 figures.

SUB CODE: 07/ SUBM DATE: 29Jun65/ ORIG REF: 006/ OTH REF: 002

Card 2/2

L 07801-67   EWT(m)/EWP(j)   WW/JW/RM

ACC NR: AP6034028   SOURCE CODE: UR/0080/66/039/010/2386/2386

AUTHOR: Shner, V. F.

ORG: Scientific Research Institute of Organic Intermediates and Dyestuffs (Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley)

TITLE: Spontaneous explosion of stored 3-aminopropionitrile

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 10, 1966, 2386

TOPIC TAGS: aminopropionitrile, storage, chemical explosion

ABSTRACT: The author cautions against possible spontaneous explosion of stored 3-aminopropionitrile and describes the following incident: 42 g of 3-aminopropionitrile prepared by a method described in an earlier study (A. P. Terent'yev, K. I. Chursina, and A. N. Kost, ZhOKh, 30, 1073, 1950) and carefully distilled in vacuum were stored in a glass flask. The substance was kept at room temperature in the dark without air access. After six months of storage, about 75% of aminopropionitrile was tranformed into a yellowish solid polymer, while the liquid portion remained colorless; 15 days later a violent explosion took place.

SUB CODE: 07, 19/ SUBM DATE: 13Nov65/ ORIG REF: 005/ OTH REF: 004/
ATD PRESS: 5101

Card 1/1   UDC: 543.876+547.466.3

PRZHIYALGOVSKAYA, N.M.; SHNER, V.F.; BELOV, V.N.

Syntheses based on esters of tetralonecarboxylic aicds. Zhur.ob.
khim. 31 no.5:1678-1681 My '61.   (MIRA 14:5)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva.
                        (Naphthalenone)

PRZHIYALGOVSKAYA, N.M.; SHNER, V.F.; MEL'NIKOVA, M.I.; BELOV, V.N.

Reduction of esters of 2,3-naphtholcarboxylic acid to esters
of 2,3-tetralonecarboxylic acid. Zhur.ob.khim. 33 no.2:635-
637 F '63.   (MIRA 16:2)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.
Mendeleyeva.
            (Naphthoic acid)   (Naphthalenone)

PRZHIYALGOVSKAYA, N.M.; SHNER, V.F.; BELOV, V.N. [deceased]

Reduction of naphtholcarboxylic acids. Part 9: Preparation
of 6-bromo-2,3-tetralone and methyl ester of 6-bromo-2,3-
tetralonecarboxylic acid. Zhur.ob.khim. 33 no.10:3292-3294
O '63.   (MIRA 16:11)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.
Mendeleyeva.

PRZHIYALGOVSKAYA, N.M.; SHNER, V.F.; BELOV, V.N.

Reduction of naphtholcarboxylic acids. Part 10: Preparation of
6-acetamino-2-tetralone and methyl ester of 6-acetamino-2,3-
tetralonecarboxylic acid. Zhur.ob.khim. 34 no.2:508-511 F '64.
(MIRA 17:3)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendele-
yeva.

SHNER, V.F.

Infrared spectra of compounds of the 2-tetralone series. Zhur.
ob. khim. 35 no.6:977-979 Je '65.   (MIRA 18:6)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov
i krasiteley.

S/0198/64/010/003/0263/0270

ACCESSION NR: AP4037990

AUTHOR: Buyvol, V. M. (Buyvol, V. N.) (Kiev); Goloborod'ko, S. O. (Goloborod'ko, S. A.) (Kiev); Shnerenko, K. I. (Kiev)

TITLE: Stress distribution in a spherical shell with a hole stiffened on the edge by an elastic ring

SOURCE: Pry*kladna mekhan̦ika, v. 10, no. 3, 1964, 263-270

TOPIC TAGS: spherical shell, shallow shell, spherical shallow shell, stress concentration, stress distribution, minimum stress concentration

ABSTRACT: The stress field around a circular hole in a shallow spherical shell under uniform internal pressure is investigated. The edge of the hole is stiffened by a thin elastic ring which is rigid in flexure and in tension. The hole has a cover transmitting only shear stresses. All these component parts (the shell proper, the stiffening ring, and the hole cover) are treated separately, and the forces and moments acting on them are calculated taking into account the interaction between shell and ring, and ring and cover. The effect of

Card 1/2

ACC NR: AP6036459   SOURCE CODE: UR/0198/66/002/011/0055/0062

AUTHOR: Shnerenko, K. I.   (Kiev)

ORG: Institute of Mechanics, Academy of Sciences, UkrSSR (Institut mekhaniki AN UkrSSR)

TITLE: Stress distribution around curvilinear reinforced holes in a spherical shell

SOURCE: Prikladnaya mekhanika, v. 2, no. 11, 1966, 55-62

TOPIC TAGS: stress distribution, stress concentration, spherical shell, hole weakened shell

ABSTRACT: The state of stress in a spherical shell weakened by a curvilinear hole of arbitrary contour closed by a perfectly rigid cover is discussed.   The pattern of shear-force distribution along the edge of the hole is determined later from the condition of the static equilibrium of the cover.   The shell is under constant internal pressure.   The stresses (in the area adjacent to the hole) consist of basic stresses (in a non-weakened shell), which are determined by known forces and displacements, and supplementary stresses (caused by the presence of the hole) which are described by an equation for shallow shells containing the deflection and stress functions, and a hole-dimension parameter.   An approximate expression for the deflection function is derived, as well as systems of algebraic equations for the zero, first, and second approximations for determining the coefficients of this function.   The approximate formulas for stresses and displacements are taken from an article by

Card 1/2

ACC NR: AP6036459

G. N. Savin and A. N. Guz' (Izv. AN SSSR, Seriya Mekhanika i mashinostroyeniye, no. 6, 1964). By ascribing certain values to contour parameters in these formulas, the stress distributions around holes of various shapes (circular, elliptic, and equi-lateral triangle, square, and a regular polygon—all with rounded corners) can be obtained. The distributions of normal, tangential, and bending stresses around circular, elliptic, and square holes in spherical shells are shown in diagrams and tables, and are discussed. Orig. art. has: 4 figures, 14 formulas, and 3 tables.

SUB CODE: 20/ SUBM DATE: 08May.65/ ORIG REF: 006/

Card   2/2

L 53788-65   EWT(d)/EWT(m)/EW w)/EWA(d)/EWP(v)/EPR/EWP(k)/EWA(h)
Peb/Pf-4   WW/EM
ACCESSION NR: AP5014822   UR/0198/65/001/005/0021/0028

AUTHORS: Guz', A. N. (Kiev); Shnerenko, K. I. (Kiev)   32
                                                                       31
TITLE: Stressed state of shell weakened by two curvilinear holes   B

SOURCE: Prikladnaya mekhanika, v. 1, no. 5, 1965, 21-28

TOPIC TAGS: shell theory, shell structure, stress concentration, approximation
method, spherical shell

ABSTRACT: The stress distribution in a shell weakened by circular or other types
of holes was calculated. It is assumed that the initial, fundamental stress is
known, and the additional stress distribution due to the holes is necessary. The
governing equation is given by

$$\nabla^2 \nabla^4 \Phi - i \varkappa^2 \nabla_k^2 \Phi = 0$$

$$\Phi = w + i n \varphi; \qquad \varkappa = \sqrt{\frac{12(1-\nu^2)}{h^2}} r_0; \qquad n = \frac{\sqrt{12(1-\nu^2)}}{Eh^2}$$

Card 1/3

L 53788-65
ACCESSION NR: AP5014822

and the contour of the curvilinear holes is defined by

$$z = \zeta + \varepsilon f(\zeta), \qquad |z = re^{i\theta}, \ \zeta = \varrho e^{i\gamma}, \ \varepsilon < 1|,$$

The solution is written in the form

$$\Phi = \Phi_1^{(0)}(\eta, \varphi) + \sum_{l=0}^{\infty} \varepsilon^l \Phi_{l2}^{(0)}(r, \theta) + \sum_{k=1}^{\infty} \sum_{l=0}^{\infty} \varepsilon^l \left[\Phi_{l12}^{(k)}(\eta, \varphi) + \Phi_{l21}^{(k)}(r, \theta)\right],$$

and an expression is given for the stress around the contour of the hole in terms of the deformations Φ. The case of a spherical shell is considered which is weakened by circular and elliptic holes. Conditions at the circular holes are given by

$$T_\eta\big|_{\eta=\eta_*} = -P_0/h; \quad S_{\eta\varphi}\big|_{\eta=\eta_*} = 0; \quad G_\eta\big|_{\eta=\eta_*} = 0; \quad \widetilde{Q}_\eta\big|_{\eta=\eta_*} = -\frac{pR_0}{2};$$

and at the elliptic contour, by

$$T_n\big|_{r=1} = -P_0/h; \quad S_{ns}\big|_{r=1} = 0; \quad G_n\big|_{r=1} = 0; \quad \widetilde{Q}_n\big|_{r=1} = F_4(\gamma, \theta).$$

For the latter, the solution is limited to terms of order ε or

Card 2/3

L 53788-65
ACCESSION NR: AP5014822

$$\Phi = \Phi_1^{(0)}(\eta, \varphi) + \Phi_{02}^{(0)}(r, \theta) + \varepsilon\Phi_{12}^{(0)}(r, \theta) + \sum_{k=1}^{\infty} \{\Phi_{012}^{(k)}(\eta, \varphi) +$$

$$+ \Phi_{021}^{(k)}(r, \theta) + \varepsilon[\Phi_{112}^{(k)}(\eta, \varphi) + \Phi_{121}^{(k)}(r, \theta)]\}.$$

A numerical example is given where the stress around a circular contour at $\vartheta = 0$ is given by

$$T_s\big|_{\substack{r \\ \varphi=0}} = P_0 h \left(4,5811 - \frac{a-b}{a+b} \cdot 2,7691\right).$$

Orig. art. has: 16 equations, 1 figure, and 1 table.

ASSOCIATION: Institut mekhaniki AN UkrSSR (Institute of Mechanics, AN UkrSSR)

SUBMITTED: 24Dec64   ENCL: 00   SUB CODE: AS, MA

NO REF SOV: 011   OTHER: 001
         AM
Card 3/3

L   UCUu2-c7   EWT(m)/EWP(t)/ETI   JD/HW

ACC NR: AP7001660   SOURCE CODE: UR/0198/66/002/006/0037/0048

AUTHOR: Guz', A. N. (Kiev); Shnerenko, K. I. (Kiev)   '7
                                                                     B

ORG: Institute of Mechanics, Academy of Sciences Ukrainian SSR (Institut mekhaniki
AN UkrSSR)

TITLE: Equilibrium of a spherical shell in the form of an eccentric ring

SOURCE: Prikladnaya mekhanika, v. 2, no. 6, 1966, 37-48

TOPIC TAGS: spheric shell structure, algebraic equation

ABSTRACT: A method reported earlier by GUZ' (DAN SSSR, Vol 158, No 6, 1964)
reduced the problem of the stress condition of hollow spherical shells with
multiconnected regions to a solution of infinite systems of algebraic equa-
tions; a more recent work by the same author (Guz', A. N., Prikladnaya
Mekhanika, Vol 2, No 3, 1966) demonstrated the quasi-regularity and unique-
ness of the solution of such systems for the case of finite regions, but did
not consider the case of finite multiconnected regions. In the present work
a method is given for solving the problem of the stressed condition of a
hollow spherical shell with an eccentric ring configuration. A study is made
of the obtained infinite system of algebraic equations, and the quasi-
regularity and uniqueness of the solution of the system for a finite annular
region is demonstrated for the case of noncontiguous contours. The example
given is that of the stressed condition in a shell under an internal pressure
load for the case where the inner contour is free and the outer contour
rigidly clamped. Zero, first and second approximation data are tabulated.
Orig. art. has: 2 figures, 3 formulas and 1 table. [JPRS: 37,655]

SUB CODE: 20, 12 / SUBM DATE: 22Jan66 / ORIG REF: 008
Card 1/1 mc

SHNERKH, S.S.

Investigating the basic technical and economic indices for
oil and gas-gathering networks. Neft. i gaz. prom. no.2:
47-49 Ap-Je '64.   (MIRA 17:9)

YEREMIN, B.F. ; STIGNEYEV, Ya. F. ; KONYASHOV, V.V. ;
VISHNEVSKIY, P.I. ; SHNEYBERG, V.I. ; GORBUNOV. ye. K. ;
ROMANOV. I.I.

Machinery Industry

"Study of Stakhanovite experience and its introduction into machine building."
Reviewed by S.A. Nikitin.   Avt.trakt.prom., no. 7, 1952.

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, NOVEMBER 1952.   UNCLASSIFIED.

L 04447-67   EWT(1)/FCC   GW

ACC NR: AP6018937   (N)   SOURCE CODE: UR/0203/66/006/003/0621/0624

AUTHOR: Shneyer, V. S.   53
                                                            48
ORG: Arctic and Antarctic Scientific-Research Institute of the Gidrometsluzhba SSSR
(Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut Gidrometsluzhby SSSR) B

TITLE: Underwater magnetic measurements on a drifting station

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 3, 1966, 621-624

TOPIC TAGS: earth magnetic field, magnetic field measurement, magnetometer, oceano-
graphic instrument, underwater magnetic field measurement

ABSTRACT: The paper gives a brief description of the design and operation of two instruments
for underwater magnetic field registration. The first is an underwater magnetic variometer
PMV-2 consisting of an optical-mechanical Z-variometer. The magnetic system on a magnetic
frame is mounted within a Helmholtz coil. It has an autonomous electrical power supply and
can stand a pressure of 150 atm. The second is an underwater proton magnetometer for the
measurement of the modulus of the total strength. The underwater part has a proton-containing
liquid and a preamplifier. The electronic counter-frequency meter Ch3-3 and the cathode ray

                10   20

Card 1/2   UDC: 550.373

L 04443-57

ACC NR: AP6018937   5

oscilloscope S1-5 are above the surface. Some illustrative results are discussed together with problems of magnetic field determination from moving stations. The author thanks D. A. Nizyayev and V. Ya Shifrin for the construction of the equipment and A. I. O1' for continuous consultations. Orig. art. has: 4 tables.

SUB CODE: 08, 14/   SUBM DATE: 03Jul65/   ORIG REF: 005/   OTH REF: 001

Card 2/2

SHNEYBERG, V.M., inzh.

Characteristics of flash-free hammer drop forging. [Nauch. trudy]
ENIKMASHa 3:3-8 '60.   (MIRA 14:1)
                    (Forging)

KONONOV, I.V.; SHNEYBERG, V.M.

Mechanizing the control of steam-air swaging and forging machinery. Kuz.-shtam. proizv. 4 no.1:35-37,38 Ja '62.
(MIRA 17:3)

KONONOV, I.V., inzh.; SHNEYBERG, V.M., inzh.

Control mechanism for steam- or air-lift drop forging hammers.
[Nauch. trudy] ENIKMASha 6:118-128 '63.   (MIRA 16:9)
                    (Forging machinery) (Servomechanisms)

GTASFL   No. 45

Shneyberg, Ya.A., The prominent Russian military engineer of the 19th century, M.M. Boreskov,
200 19

Akademiya Nauk S.S.S.R.,   Doklady   Vol. 79 No. 5

SHNEYBERG, Ya.A.

V.V.Petrov's storage battery, and his experience with the eletric arc, and discharge in a vacuum. Elektrichestvo no.11:71-75 N '53.   (MLRA 6:10)

1. Moskovskiy energeticheskiy institut im. Molotova.
        (Electric batteries) (Petrov, Vasilii Vladimirovich, 1761-1834)

CHILIKIN, M.G., red.; BEL'KIND, L.D., red.; YELIZAROV, P.P., red.; MESHKOV,
V.V., red.; NIKITIN, S.P., red.; PEREKALIN, M.A., red.; PRUZNER, S.L.,
red.; SHNEYBERG, Ya.A., red.; IGLITSYN, I.L., red.; ANTIK, I.V., red.;
SKVORTSOV, I.M., tekhn. red.

[Fifty years of the Moscow Order of Lenin Power Engineering Institute]
50 let Moskovskogo ordena Lenina energeticheskogo instituta imeni V.M.
Molotova. Moskva, Gos. energ. izd-vo, 1955. 302 p.   (MIRA 14:8)
(Power engineering)

AID P - 3044

Subject   : USSR/Electricity

Card 1/2   Pub. 27 - 31/33

Author   : Shneyberg, Ya. A., Kand. of Tech. Sci.

Title   : Outlines of the History of Power Engineering of the
                USSR. Review of critical comments. (Book reviews)

Periodical   : Elektrichestvo, 7, 150-151, Jl 1955

Abstract   : In this journal, No. 3, 1954 and No. 1, 1955 were
                published reviews of the consecutive issues of the
                "Outlines"as they appeared. In addition, the Editorial
                Committee of the "Outlines..." received some 200 comments
                from universities, scientific institutions and indivi-
                duals. Some factories organized committees to discuss
                certain of the "Outlines" and sent their comments. All
                welcomed the initiative and the work of the group of
                authors from the Moscow Power Engineering Institute im.
                Molotov. The author gives general characteristics of
                the comments. Most of the criticism concentrated on

AID P - 3044

Elektrichestvo, 7, 150-151, Jl 1955

Card 2/2   Pub. 27 - 31/33

the attempt to make the presentation of the problems
accessible to large circles of readers. Many of the
critical comments will be taken into consideration in
the future work of the Editorial Committee. As con-
cerns publications which have already appeared, cor-
rections will be introduced into future editions.

Institution : Moscow Power Engineering Institute im. Molotov.

Submitted   : No date

LEVIT, Grigoriy Osipovich, inzhener; BEL'KIND, L.D.,doktor tekhnicheskikh
nauk, redaktor; GLAZUNOV, A.A.,doktor tekhnicheskikh nauk, redaktor;
GOLUBTSOVA, V.A.,kandidat tekhnicheskikh nauk, redaktor; ZOLOTAREV,
T.L.,doktor tekhnicheskikh nauk, redaktor; IZBASH, S.V.,
doktor tekhnicheskikh nauk, redaktor; KIRILLIN, V.A.,redaktor;
KONFEDERATOV, I.Ya.,doktor tekhnicheskikh nauk, redaktor; PETROV,
G.N.,doktor tekhnicheskikh nauk, redaktor; SIROTINSKIY, L.I.,
doktor tekhnicheskikh nauk, redaktor; SOLOV'YEV, I.I.,professor,
redaktor; STYRIKOVICH, M.A.,redaktor; SHNEYBERG, Ya.A.,kandidat
tekhnicheskikh nauk, redaktor; SHCHEGLYAYEV,A.V.,redaktor; AMTIK,
I.V.,redaktor; FREDKIN, A.M.,tekhnicheskiy redaktor

[Outline history of power engineering in the U.S.S.R.] Ocherki
po istorii energeticheskoi tekhniki SSSR. Red. komissiia L.D.
Bel'kind i dr. Moskva, Gos. energ. izd-vo. No. 3. [Power
congresses and conferences] Energeticheskiy s"ezdy i
konferentsii. 1956. 98 p.   (MIRA 10:4)

1. Moscow. Moskovskiy energeticheskiy institut. 2.Chlen-korrespondent
AN SSSR.(for Kirillin, Styrikovich, Shcheglyayev)
        (Power engineering--Congresses)

BEL'KIND, Lev Davidovich; KONFEDERATOV, Ivan Yakovlevich; SHNEYBERG, Yakov
    Abramovich; KOMAROV, L.P., redaktor; ANTIK, I.V., redaktor; VORONIN,
    K.P., tekhnicheskiy redaktor

[A history of technology] Istoriia tekhniki. Moskva, Gos. energ.
izd-vo, 1956. 491 p.   (MLRA 9:12)
        (Technology--History)

GUREVICH, M.M., professor; KARYAKIN, N.A., professor; MESHKOV, V.V.,
    professor; SOKOLOV, M.V., professor; TIKHODEYEV, P.M., professor;
    FABRIKANT, V.A., professor; IVANOVA, N.S., kandidat tekhnicheskikh
    nauk; SHNEYBERG, Ya.A.; YUROV, S.G.; ASHKENAZI, G.I., inzhener.

Professor L.D. Bel'kind; on his sixtieth birthday. Svetotekhnika
2 no.5:26 S '56.   (MLRA 9:11)

        (Bel'kind, Lev Davidovich, 1896-)

Shneyberg, Ya. A.

CHILKIN, M.G.; MESHKOV, V.V.; GOLUBTSOVA, V.A.; SIROTINSKIY, L.I.; VENIKOV, V.A.;
ZOLOTAREV, T.L.; KONFEDERATOV, I.Ya.; SHNEYBERG, Ya.A.; VESELOVSKIY, O.N.

Professor L.D.Bel'kind. Elektrichestvo no.8:93-94 Ag '56. (MLRA 9:10)
(Bel'kind, Lev Davidovich, 1896-)

SHNEYBERG, G, Ya. A.

PA - 3119

:OR: Cand. of phys. math. sciences V.N. GOLOUSHKIN and A.A. YELISEYEV
(Leningrad).

LE: "The History of Technical Science" L.D. Bel'kind, I.Ya. Konfedera-
tov, Ya. A. Shneyberg.
(L.D. Bel'kind, I.Ya. Konfederatov, Ya.A. Shneyberg. Istoriya
tekhniki. Russian).

ABSTRACT: A textbook for universities. Chapter 1 - 3, a survey of the de-
velopment of technical science from primitive to feudal times.
Chapter 4, the beginning of heat energetics. Chapter 5, a short
summary of the development of the science of electricity and
magnetism from the early beginnings to the end of the eighteenth
century. Chapter 6, the causes, characteristics and consequences
of the Industrial Revolution in the last third of the eighteenth
century. Chapter 7, the development of thermoenergetics after
the beginning of the Industrial Revolution to the 1870's. Chap-
ter 8 - 10, the discovery of the electric current and the develop-
ment of electro-technical science up to the 1870's. Chapter 11,
the development of machine construction, metallurgy, transporta-
tion system, and chemical technology in the first half of the
nineteenth century. Chapter 12, the development of electrotechnics
in the 1870's and '80's. Chapter 13, the development of the most

Card 1/2

PA - 3119

"The History of Technical Science", L.D. Bel'kind, I.Ya.Konfedera-
tov, Ya. A. Shneyberg.

important branches of the technical sciences in the second half
of the nineteenth century. Chapter 14, the history of the ori-
gins of internal combustion machnines, gas and water turbines.
Chapter 15, the history of three phase current. Chapter 16, the
origin of the sciences of radio and electronics. Chapter 17, the
beginning of electrification.

The second part of the textbook, which handles the twentieth cen-
tury, is still in preparation.

ASSOCIATION:Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

VESELOVSKIY, O.N., kand.tekhn.nauk; KONFEDERATOV, I.Ya., doktor tekhn.nauk;
     SHNEYBERG, Ya.A., kand.tekhn.nauk

     Prerequisites and importance of the development of electrical power
     engineering. Trudy MEI no.26:9-29 '57.   (MIRA 11:9)
                         (Electric engineering)

BOCHAROVA, Mayya Dmitriyevna; SHNEYBERG, Ya.A., red.; VORONIN, K.P.,
    tekhn.red.

    [B.S.IAkobi's works in electrical engineering] Elektrotekhni-
    cheskie raboty B.S.IAkobi. Moskva, Gos.energ.izd-vo, 1959.
    230 p.   (MIRA 13:3)
                    (Electrical engineering)
                (Jacobi, Moritz Hermann von, 1801-1874)

YELISEYEV, Aleksey Aleksandrovich; SHNEYBERG, Ya.A., red.; SOBOLEVA,
. ., Ye.M., tekhn.red.

[Origin of the science of electricity in Russia; studies of
M.V.Lomonosov and G.V.Rikhman] Vozniknovenie nauki ob elektri-
chestve v Rossii; issledovaniia M.V.Lomonosova i G.V.Rikhmana.
Moskva, Gos.energ.izd-vo, 1960. 270 p.
                    (Electricity)   (MIRA 14:1)

YELISEYEV, Aleksey Aleksandrovich; SHNEYBERG, Yakov Abramovich;
    FILIPPOV, S.M., red.; SEVRYUKOV, P.A., tekhn. red.

    [V.V.Petrov; on the 200th anniversary of his birth]V.V.Petrov;
    k 200-letiiu so dnia rozhdeniia. Kursk, Kurskoe knizhnoe.izd-
    vo, 1961. 78 p.   (MIRA 15 8)
            (Petrov, Vasilii Vladimirovich, 1761-1834)

SHNEYBERG, Yakov Abramovich; ZOTIKOV, V.Ye., retsenzent; KHRUSTAL',
N.V., red.; KOVALENKO, V.L., tekhn. red.

[At the sources of electrical engineering; life and work of
Academician V.V.Petrov, the first Russian electrical
engineer] U istokov elektrotekhniki; zhizn' i deiatel'nost'
pervogo russkogo elektrotekhnika akademika V.V.Petrova. Mo-
skva, Uchpedgiz, 1963. 145 p.   (MIRA 16:6)
        (Petrov, Vasilii Vladimirovich, 1761-1834)
                (Electric engineering)

SHNEYBERG, Ya. I.

3-3-25/40

AUTHOR: Uvarova, L.I., Candidate of Technical Sciences
                 Institute of History of Natural Science and Technique, AN USSR

TITLE: Excellent Text-Book on History of Technique (Udachnyy
                 uchebnik po istorii . tekhniki)

PERIODICAL: Vestnik vysshey shkoly, March 1957, No. 3, pp. 84-88 (USSR)

ABSTRACT: The article represents a review on "The History of Technique
                 written by L.D. Bel'kind, I.Ya. Konfederatov and Ya.I. Shney-
                 berg, and published in 1956. The author comments on the
                 different chapters of the book and the review, in general,
                 is a favorable one. He states that the new text-book differs
                 from other works on the history of technic by its object-
                 ivity in evaluating the contributions made to technical pro-
                 gress by the individual men of technique and science

ASSOCIATION: Institute of History of Natural Science and Technique, AN USSR
                 (Institut istorii yestestvoznaniya i tekhniki AN SSSR)

AVAILABLE: Library of Congress

Card 1/1

SHNEYBERG, YA. I.

Cand. Veterinary Sci.

Dissertation: "Alkali-Acid Ratio, Albumin Composition of Biological Liquids, and Cytograns in Cases of Surgical Spsis of Horses."

29 Sept. 49

Moscow Veterinary Academy

SO Veeneryaya Moskva
Sum 71

GANIMEDOV, L., dokter veterinarnykh nauk;SHNEYBERG, Ya., kandidat veterinar-
nykh nauk.

"Theory and practice of the surgical suture." A.N.Golikov.Reviewed by
L.Ganimedov,IA.Shneiberg, Veterinariia 32 no.9:85-87 S '55.(MLRA 8:12)
(SUTURES) (VETERINARY SURGERY) (GOLIKOV, A.N.)

USSR/General Biology - Transplantation and Anastomosis.   B-5

Abs Jour   :   Ref Zhur - Biol., No 15, 1958, 66745

Author   :   Shneyberg, Ya.I.
Inst   :
Title   :   The Free Transplantation of Thick Epidermo-Pillar Shreds
                in a Horse.

Orig Pub   :   Veterinariya, 1956, No 5, 52-56.

Abstract   :   The skin from a forepart and neck was used for autotrans-
                plantation. The transplantations were carried out on
                various parts of a horse's body on flat granulating and
                freshly injured, non-infected surfaces which have been
                freed from crushed and dead tissues. The shreds of an
                area from 10-320 cm^2. were previously perforated (on an
                average of one perforation per 10-15 cm^2). A transplan-
                tation (T) was fastened by means of stitches to the bor-
                der of defective shin and covered with roll cotton gauze.
                In the first series of experiments, from the 22 incomplete-
                                                                        ly

Card 1/2

USSR/General Biology - Transplantation and Anastomosis.   B-5

Abs Jour   : Ref Zhur - Biol., No 15, 1958, 66745.

layered skin shreds (thick epidermo-pillar shreds) inclu-
ding epithelium and the entire pillar layer, seventeen
became fully grafted and three partially. In the second
series, from the 5 completely layered skin shreds, two
became fully grafted and one partially. Observations on
T conditions within 2 years showed that the transplantated
skin retains elasticity and resistance to pressure and
friction, and is able to grow hair.

Card 2/2

- 9 -

SHNEYBERG, Ya.I.

Characteristics of free skin transplantation in animals. Biul.eksp.
biol.i med. 42 no.12:64-69 D '56.   (MLRA 10:2)

1. Iz Krasnoyarskogo sel'skokhozyaystvennogo instituta (dir. -
dotsent G.A.Cheremisinov)
        (SKIN TRANSPLANTATION, experimental,
            in cattle & horses (Rus))

SHNEYBERG, Ya.I.

Using a glass electrode for determining exudation pH in wounds in
large animals. Lab. delo 3 no.1:55-57 Ja-F '57   (MIRA 10:4)

1. Iz Krasnoyarskogo sel'skokhozyaystvennogo instituta.
     (ELECTRODES, GLASS) (VETERINARY MEDICINE)

SHNEYBERG, Yakov Iosifovich; LYZHIN, K., red.; GIL'DEBRANT, Ye., tekhn.
red.

[Preventing injuries to animals in large-group maintenance and
loose housing] Preduprezhdenie travmatizma zhivotnykh pri krupno-
gruppovom i bespriviaznom soderzhanii. Krasnoiarsk, Krasnoiarskoe
knizhnoe izd-vo, 1960. 45 p.   (MIRA 14:10)
                    (Stock and stockbreeding)

SHNEYDAR, Vatslav [Sneidar, Vaclav], inzh. (Praga)

Miraculous properties of semiconductors. Nauka i zhyttia 11 (MIRA 14:7)
no.5:53 My '61.
(Czechoslovakia—Semiconductors)

SHNEYDER, A.A.

Sneider, A. A. On series of Walsh functions with mono-
tonic coefficients. Izvestiya Akad. Nauk SSSR. Ser.
Mat. 12, 179–192 (1948). (Russian)
The orthogonal system of Rademacher was first com-
pleted by Walsh [Amer. J. Math. 45, 5–24 (1923)]. Two
different definitions of the Walsh functions were given inde-
pendently by Kaczmarz [Comptes Rendus du I Congrès
des Mathématiciens des Pays Slaves 1929, Warsaw, 1930,
pp. 189–192; see also Kaczmarz and Steinhaus, Theorie der
Orthogonalreihen, Warszawa-Lwów, 1935] and Paley [Proc.
London Math. Soc. (2) 34, 241–264, 265–279 (1932)]. Both
definitions lead to the same system but the orders of the
functions within the systems are different. Let us denote
the Paley and the Kaczmarz arrangements by $\{\varphi_n\}$ and
$\{\psi_n\}$, respectively, and let c_n be a monotonic decreasing
sequence of positive numbers. The author shows that (1)
the series $\sum c_n \varphi_n(t)$ converges uniformly in every interval
$(\delta, 1-\delta)$, $0<\delta<1$; (2) if $c_n \neq o(1/\log n)$, then $\sum c_n \psi_n(t)$
diverges almost everywhere; (3) if $\sum c_n^2 < \infty$, then $\sum c_n \psi_n(t)$
converges almost everywhere.   A. Zygmund.

Source: Mathematical Reviews,   Vol 10, No. 1

Cand. Physicomath Sci.

SHNEYDER, A. A.

Dissertation: "On the Convergence of Fourier Series by Wallsh Functions."

21/6/50
Sci. Res. Inst. of Mathematics, Moscow Order of Lenin State U. imeni
M. V. Lomonosov.

SO Vecheryaya Moskva
Sum 71

SHNEYDER, A. A.
USSR/Mathematics - Set theory   FD-451

Card 1/1   : Pub. 64 - 3/11

Author   : Shneyder, A. A. (Groznyy)

Title   : Sets which are a generalization of H-sets

Abstract   : H-sets were introduced by Reichmann in connection with the study of
                   the problem of the uniqueness of expansions into trigonometric series;
                   he proved that the H-sets are the sets of uniqueness for these series.
                   The author investigates here the properties of his H*-sets, introduced
                   for the first time. Similar results appeared in an article by N. K.
                   Bari ("Problem of the uniqueness of expansion of a function into a
                   trigonometric series," Usp. Mat. nauk., 4, No 3 (31), 1949, 3-68).

Institution   :

Submitted   : February 17, 1953

SHNEYDER, A.A. (Groznyy)

Convergence of Fourier's series in Walsh functions. Mat.sbor. 34
no.3:441-472 My-Je '54.   (MLRA 7:6)
        (Fourier's series) (Functions, Orthogonal)

SHNEYDER, A. D. :

Shneyder, A. D. : "Investigation of the properties of photoconductiviy of
semiconductors of the cadium-sulfide type." Min Higher Education
Ukraninian SSR. L'vov State U imeni A. A. Zhdanov. Leningrad, 1956.

So: Knizhayna Letopis' No 27, 1956.   Pages 94-109; 111

SHNEYDER, A.D.

USSR/Electricity - Semiconductors   G-3

Abs Jour   : Referat Zhur - Fizika, No 5, 1957, 12220

Author   : Shneyder, A.D.
Inst   : —
Title   : Kinetics of Photocurrent Buildup and the Quenching of
               Photoconductivity of Cadmium Sulfide.

Orig Pub   : Zh. tekhn. fiziki, 1956, 26, No 7, 1428-1432

Abstract   : An investigation was made of the relaxation photoconduc-
               tivity and the quenching of the photoelectric current by
               means of infrared light, in single crystals of CdS. In
               all the specimens tested, no superlinearity of the photo-
               conductivity and no photo-rectifying effect were observed,
               and Ohms law remained valid up to 20 volts of applied vol-
               tage. A photoactivation phenomenon was observed. In crys-
               tals, activated by shortwave light, the quantum yield is
               greater, the photocurrent increases more rapidly, and
               obeys a different law than in non-activated crystals whose

Card 1/3

USSR/Electricity - Semiconductors   G-3

Abs Jour   : Ref Zhur - Fizika, No 5, 1957, 12220

                relaxation curve can have a point of inflection at weak
                intensities of exciting radiations. The photoactivation
                is removed by exposure to infrared light with a wave-
                length $\lambda = 0.6 -- 1.9$ microns. At the same values of
                λ, one observes the quenching of photoconductivity,
                and exposure to $\lambda = 1.1 -- 0.6$ causes quenching, at
                the initial instant of which a flash of photoconductivity
                is observed. The intensity of the flash is a complicated
                function of the intensities of the two radiations and of
                the duration of the dark interval. At low intensities of
                illumination, if it is turned on repeatedly a second and
                third flash may occur. Illumination at $\lambda = 1.1 -- 1.9$
                microns produces no flash. The appearance of the flash
                serves as a sensitive indicator of the photoactivation of
                the crystal. The quenching of the photoconductivity is
                observed in all crystals, regardless of their stoichiome-
                tric deviations, and also in polycrystals, obtained by

Card 2/3

                evaporation in a hydrogen atmosphere; and in the case of
                the commercial photoresistance FSK-1 with copper impurities.
                The spectral characteristic of the quenching usually has
                two maxima. The FSK-1 has only the long-wave maximum.
                The quenching depends little on the wavelength of the acti-
                vating light, and diminishes as the temperature is raised to
                100°. A reduction in the temperature to -183° does not
                exert a direct influence on the extent of the quenching.
                The appearance of the quenching is connected by the author
                with the photoactivation and the author offers two possi-
                ble explanations for this connection -- one on the basis
                of the double optical transition scheme, and the other
                on the basis of the interaction between light quanta and
                excitons.

Card 3/3

SHNEYDER, A.P.

USSR/Electricity - Semiconductors   G-3

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12221

Author   : Shneyder, A.D.
Inst   :
Title   : Quenching of Photoconductivity in Mercuric Sulfide.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 7, 1433-1436

Abstract : An investigation was made of the quenching of photocon-
            ductivity in HgS-cinnabar exposed to infrared light.
            Spectral curves of photoconductivity are obtained, with
            a maximum at 0.63 μ for room temperature. Upon cooling,
            the maximum shifts towards the shorter waves with a rate
            of 1 A per degree. The lux vs. ampere characteristics of
            HgS turned out to be almost linear. The quenching of the
            photoconductivity and the photoactivation are observed
            only at temperatures less than 0 -- 5°, and increase with
            diminishing temperature. The quenching takes place for
            photocurrents excited by all wavelengths, but in the case

Card 1/3

quenching is so greater than
that at shorter wavelengths. The extent of the quenching
was less than that for CdS, but the behavior of the quen-
ching is quite similar for both materials. Also observed
was a flash upon illumination, which, in the author's opi-
nion, indicates that the photoconductivity has a smaller
time lag compared with the time lag of the quenching.
It is indicated that there is a difference between the
photoactivation, of photoresistances with superlinear
photoconductivity, and the photoactivation in specimens
with lux vs. ampere characteristics that are weaker than
lenear. In the former case, the photoactivation is con-
nected with the dependence of the quantum yield on the
intensity of the light, and in the latter it is connected
with the dependence of the quantum yield on the magnitude
of the residual photocurrent in darkness. The quenching
is connected with the latter type of photoactivation.

Card 2/3

Specimens of HgS display noticeable polarization phenome-
na, particularly at low temperatures.

SHNEYDER, A.D.

47-4-12/20

AUTHOR: Shneyder, A.D. (L'vov)

TITLE: Simple Demonstrations with Thermoresistance (Prostyye demonstratsii s termosoprotivleniyami)

PERIODICAL: Fizika v shkole, 1957, No 4, pp 70-71 (USSR)

ABSTRACT: Lately the thermistors (semiconducting thermoresistance meters) find wide application in various technological branches. Some of them are sold in the Glavsnabpros shops. By means of the thermistor "MMT-4", a property common to most semiconductors, a decrease in resistance when warming up can be demonstrated. As the decrease may be considerable, the metal thermometers of resistance have been substituted in many cases by thermistors. The figure contained in the article shows the system of a simple demonstration with thermistor MMT-4. The tension must be such as to let the galvanometer show a current of not more than 1 - 2 milliampere. The galvanometer of the Fizelektropribor (Moscow) is the most suitable, having a sensitivity of about 0.2 milliampere, within one graduation. The author recommends the use of thermistors for physics instruction, when changes of temperature of 3 - 5° and higher have to be demonstrated. The principle of functioning of an anemometer can also be shown, for which purpose the arrangement shown in the

Card 1/2

Simple Demonstrations with Thermoresistance   47-4-12/20

> figure may be used, but the current running through MMT-4
> should be within 3 - 4 milliampere. The warming up is limited
> for the MMT-4 to +120° C.
> There is one figure.

AVAILABLE: Library of Congress

Card 2/2

SHNEYDER, A.D

AUTHOR: Shneyder, A.D. (L'vov)   47-58-3-12/27

TITLE: Experiments with Photoresistors   (Opyty s fotosoprotivleniyami)

PERIODICAL: Fizika v Shkole, 1958, Nr 3, pp 51-53 (USSR)

ABSTRACT: The inner photoelectric effect is utilized in a certain type
               of photocells, usually called photo-resistors. To aquaint
               the students with the basic features of this effect and its
               utilization, the photo-resistors FS-A1, FS-A4, FS-K1 or FS-
               K2 are used. It is very easy for students of the 10th class
               to assemble a photorelay. Such devices have been presented
               to schools by the Leningradskiy zavod "Elektrodelo" ministerstva
               proveshcheniya RSFSR (The Leningrad "Elektrodelo" Plant of the
               RSFSR Ministry of Education). The author describes 4 experi-
               ments.   There are 5 drawings.

AVAILABLE: Library of Congress

Card 1/1   1. Photoelectric cells-Study and teaching   2. Physics-Study and
                   teaching

AUTHORS: Butsko, N. I., Shneyder, A. D,   57-28-6-9/34

TITLE: The Influence Exercised by X-Rays Upon the
                Properties of Mercuric Sulfide (Vliyaniye
                rentgenovskikh luchey na elektricheskiye
                svoystva sernistoy rtuti)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 6,
                pp. 1188-1189 (USSR)

ABSTRACT: The high sensitivity of photoresistances of cadmium
                sulfides to visible α-, β-, and γ-rays gave rise to
                an intensive study of the electrical properties of
                substances resembling cadmium sulfides with respect to
                their structure. Considerable interest is aroused in this
                respect by mercuric sulfide. In the course of the present
                work smaller, artificially produced polycrystalline samples
                of mercuric sulfide of the red variety were investigated.
                The volt-ampère characteristic at the beginning of the
                coordinate axes deviated from the straight line in the
                direction of the current axis, so that the dependence of the
Card 1/3   dark current on voltage can be represented by i = kU

The Influence Exercised by X-Rays Upon the   57-28-6-9/34
Properties of Mercuric Sulfide

with the index $\gamma > 1$. The further course of the
volt-ampère characteristic continues to be influenced
by visible light and by X-rays. If the ratio between the
additional current i_f and the anode current of the tube i_r
is taken as a measure of sensitivity, the sensitivity of
the samples, the dosimetrical characteristics of which are
shown by a figure, will be of the order of magnitude 0,12
microampères/milliampères (with U_r = 100 kV and U_f = 70 v).

Individual samples are marked by higher sensitivity. In spite
of the nonlinearity of the dosimetrical characteristics
mercuric sulfide, thanks to its great sensitivity, is a
promising material for the production of dosimeters.
Measurements also showed a close connection in HgS between
sensitivity to visible light and to X-rays. The highest
sensitivity to X-rays was shown by samples with high
sensitivity in the visible range. Samples without
photoconductivity were found to be insensitive also to
X-rays. The course taken by the characteristics of

Card 2/3

The Influence Exercised by X-Rays Upon the
Properties of Mercuric Sulfide   57-28-6-9/34

        sensitivity to temperature to X-rays also accurately
        reproduces temperature sensitivity to visible light.
        In the dynamic   characteristics certain differences
        are observed: The increase of current during irradiation
        by means of X-rays is determined by a duration that is
        shorter by one order of magnitude than in the case of
        visible light. There are 1 figure and 2 references, 2
        of which are Soviet.

ASSOCIATION: L'vovskiy gosudarstvennyy pedagogicheskiy institut
                (L'rov State Pedagogical Institute)

SUBMITTED: July 11, 1957

                1. Mercury sulfides—Electrical properties   2. Mercury
                sulfides—Effects of radiation   3. Mercury sulfides—
                Temperature factors   4. X-rays—Electrical effects
Card 3/3

247700

AUTHOR: Shneyder, A. D.

TITLE: Investigation of the photoconductivity of CdTe

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 38, abstract 6E305 (In
            collection: "Fotoelektr. i optich. yavleniya v poluprovodnikakh".
            Kiyev, AN USSR, 1959, 107 - 110)

TEXT: The basic photoelectric characteristics of CdTe obtained by several
methods were determined. The electrical characteristics of the samples obtained
from the gaseous phase showed a very strong straggling. Single crystals ob-
tained by the method of Bridgman showed p-conductivity, apparently connected
with the presence of Cu in Cd, and had a specific resistance varying from $1 \cdot 10^3$
to $5 \cdot 10^4$ ohm·cm. All were photosensitive: by illumination with 500 lux the
resistance of the better samples decreased twice. Of greatest interest are
layers prepared by evaporating CdTe on a hot quartz backing (distance between
the electrodes 5 mm) which showed a dark-resistance of 10^9 ohm, and at illumina-
tion with 500 lux of $5 \cdot 10^6$ ohm. The volt-ampere characteristics are, in the dark

Card 1/2

Investigation of the photoconductivity of CdTe

S/058/62/000/006/092/136
A057/A101

and at illumination, linear up to 100 v. The dependence of the photocurrent upon the intensity of the white light is described by the equation $I = KE^{\gamma}$ with $\gamma = 0.5$. The spectral characteristics have a rather narrow maximum in the range 810 - 830 mμ, with a corresponding characteristic peak on the absorption curve. The dark-current and photocurrent decrease with decreasing temperature. The frequency characteristic decreases by 45% in the range 10 - 10^4 cps. The presented data indicate the promising outlook of the CdTe use for photoresistances, which are sensitive in the near infrared region.

F. Nad'

[Abstracter's note: Complete translation]

Card 2/2

84066

P. 4300 (1035, 1138, 1143)
26. 1512

S/181/60/002/009/007/036
B004/B056

AUTHORS: Shneyder, A. D., Gavrishchak, I. V.

TITLE: The Structure and the Properties of the $HgTe$ - $CdTe$ System

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 9, pp. 2079-2081

TEXT: Proceeding from the fact that $HgTe$ and $CdTe$ crystallize in the same diamond lattice but differ with respect to the width of the forbidden band and the mobility of the electrons, the authors aimed at producing solid solutions from these compounds. They expected the formation of semiconductors in which the forbidden band width varies between 1.4 and 0.02 ev, and where the maximum of photoconductivity might be fixed by the suitable selection of a corresponding composition. $HgTe$ and $CdTe$ were synthesized and shaken in quartz ampoules with 100 cps for 10 to 15 h at 1100°C. As the substances obtained were very inhomogeneous, renewed grinding and heating followed. The chemical analysis was carried out by M. A. Navrotskiy. Two samples were produced by direct fusion of Hg, Cd, and Te. X-ray structural analysis confirmed that all samples (among them also pure $HgTe$ and $CdTe$) had diamond structure, with the lattice constants differing only slightly.

Card 1/2

The Structure and the Properties of the   S/181/60/002/009/007/036
HgTe - CdTe System   B004/B056

84066

By means of a $KPOC(KROS)^{28}$ precision-camera the solutions were found to be
solid ones. All samples showed distinctly separate K_{α_1} and K_{α_2} lines, by
means of which the lattice constants were determined (Table). A figure
shows the temperature dependence of electrical conductivity. HgTe had
n-type conductivity, whereas CdTe was found to have p-type conductivity.
Small fragments could be split from the samples, which showed p-n junctions.
The maximum of the photo-emf shifts with increasing HgTe content into the
infrared region. The results obtained by photoelectric measurements will
be published at a later date. There are 1 figure, 1 table, and 8 references:
5 Soviet, 1 US, 1 German, and 1 Japanese.

ASSOCIATION: L'vovskiy gosudarstvennyy pedagogicheskiy institut
                  (L'vov State Pedagogical Institute)

SUBMITTED: February 24, 1960

Card 2/2

L 15170-63   EWT(1)/EWG(k)/EWP(q)/EWT(m)/BDS/EEC(b)-2   AFFTC/ASD/ESD-3
Pz-4   RDW/JD/AT/IJP(C)
ACCESSION NR: AR3003341   S/0058/63/000/005/E079/E079
                                                                    70

SOURCE: RZh. Fizika, Abs. 5E499

AUTHOR: Shneyder, A. D.; Zhmurko, I. S.

TITLE: Electric and photoelectric properties of cadmium telluride layers

CITED SOURCE: Nauk. zap. Drohobyts'k. derzh. ped. in-t, vyⁿp, 8, 1962, 3-9

TOPIC TAGS: cadmium telluride, photoelectric property, electric property,
photoconducting film, photoconductivity

TRANSLATION: The optimal conditions for obtaining photoconducting CdTe films are
investigated. The best results were obtained by condensing high-resistance p-CdTe
from vapor on a quartz or graphite substrate heated to 250—300°C. The specimens
on a quartz base were characterized by a ratio i_F/i_T = 120. The specimens on the
graphite base when illuminated through the upper semi-transparent electrode had a
photocurrent i_F = (30—35) μa. The spectral characteristic of the photoconductiv-
ity displays one maximum at 840 mμ . The slope of the temperature dependence of
i_T corresponds to ΔE = 1.5 ev. The photocurrent growth curve is characterized by
an average value t = 2 x 10⁻⁴ sec, and the lifetime of the carrier is ≤10⁻⁵ sec.
A. Shneyder
DATE ACQ: 17 Jun 63   SUB CODE: PH   ENCL: 00
Card 1/1

84.2600

AUTHORS: Shneyder, A. D., and Zhmurko, I. S.

TITLE: Photoelectrical properties of mercury-activated cadmium
             telluride layers

PERIODICAL: Fizika tverdogo tela, v. 4, no. 3, 1962, 806-807

TEXT: Cd-Hg-Te layers prepared by heating CdTe with mercury vapor were
studied under conditions of "transverse" and "longitudinal" illumination.
The ratio of photocurrent to dark current was somewhat greater in the case
of "transverse" illumination whereas the absolute amount of photocurrent
in this case was only about one thousandth of the photocurrent from
"longitudinal" illumination. The electrical and photoelectrical properties
were directly dependent on the vapor pressure of the mercury in heating,
i. e., on the amount of mercury diffused into CdTe. The photoconductivity
maximum which for CdTe lies at about 830 mμ is shifted to longer waves
when mercury is added. This behavior is attributed to the formation of
solid solutions of the type xCdTe-$(1-x)$HgTe. There are 2 figures and 4
references: 3 Soviet and 1 non-Soviet. The reference to the English-
Card 1/2

Photoelectrical properties of ...

S/181/62/004/003/035/045
B108/B104

language publication reads as follows: W. D. Lawsow et al. J. Phys. Chem. Solids, 9, 325, 1959.

ASSOCIATION: Drogobyzhskiy gosudarstvennyy pedagogicheskiy institut im. I. Franko (Drogobych State Pedagogical Institute imeni I. Franko)

SUBMITTED: April 7, 1961 (initially) November 17, 1961 (after revision)

Card 2/2

S/181/63/005/004/040/047
B102/B186

AUTHORS: Shneyder, A. D., and Gavrishchak, I. V.

TITLE: Investigation of the electrical properties of p-type semicon-
             ductors of the HgTe-CdTe system

PERIODICAL: Fizika tverdogo tela, v. 5, no. 4, 1963, 1208 - 1212

TEXT: Conductivity, Hall effect, thermo-emf, and transverse and longitudinal
Nernst-Ettingshausen effects were measured of samples ($15 \cdot 5 \cdot 2$ mm^3) with the
following HgTe - CdTe compositions (%): 100-0, 95-5, 90-10, 85-15, 75-25;
the measurements were made in the range from 77 to 420°K, and at H = 3000 oe,
so that at $T > 300°K$ the condition $uH/c \ll 1$ was fulfilled. The temperature
gradients necessary for some measurements did not exceed 15-20°C. The Hall
constant R was negative in the whole range and had composition -dependent
maxima between 150 and 250°K; from the slope of the curves $RT^{3/2} = f(1/T)$
the forbidden band width could be determined. It increased with increasing
CdTe content from 0.020 (0%) to 0.055 ev (25%). σ increased with increas-
ing T. The mobility ratio $b = u_-/u_+$ was determined from the relation

Card 1/2

Investigation of the electrical...

S/181/63/005/004/040/047
B102/B186

$u_- = R\sigma b/(b-1)$. It was between 9.13 and 9.28, and u_- was equal for HgTe and HgTe-CdTe (85:15), namely $8.3 \cdot 10^3 cm^2/v \cdot sec$, for the 95:5 and 90:10 compositions it was highest (15.5 and $15.9 \cdot 10^{10}$, for 75:25 it was lowest $(3.5 \cdot 10^3)$. The reduced Fermi level was between 0.0 and 1.5; its position indicated that the samples were partially degenerate. The hole concentration varied between $8 \cdot 10^{16}$ and $3 \cdot 10^{17}$ cm^{-3}. The electron effective mass decreases with increasing CdTe concentration from 0.035 m_o (0%) to 0.013 m_o (15%). There are 4 figures and 1 table.

ASSOCIATION: Drogobychskiy gosudarstvennyy pedagogicheskiy institut im. I. Franko (Drogobych State Pedagogical Institute imeni I. Franko)

SUBMITTED: October 1, 1962 (initially)
            December 17, 1962 (after revision)

Card 2/2

SHNEYDER, A.D.; ZHMURKO, I.S.

Effect of impurities on the photoconductivity of thin layers
of cadmium telluride. Ukr. fiz. zhur. 8 no.4:487-488 Ap '63.
(MIRA 16:8)

1. Drogobychskiy pedagogicheskiy institut.
        (Photoconductivity)   (Cadmium telluride)

SHNEYDER, A.D.; GAVRISHCHAK, I.V. [Havryshchak, I.V.]

    Microhardness of HgTe - CdTe systems. Ukr. fiz. zhur. 8
    no.9:1028-1029 S '63.   (MIRA 17:8)

    1. Drogobitskiy pedagogicheskiy institut.

ACCESSION NR: AP4012029   S/0185/64/009/001/0032/0037

AUTHOR: Shneyder, A. D.; Zhmurko, I. S.

TITLE: Optical and photoelectric characteristics of the system HgTe-CdTe

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 1, 1964, 32-37

TOPIC TAGS: Hg, Cd, HgTe, CdTe, HgTe-CdTe, solid solution, optical property, photoelectric property, forbidden gap, forbidden band, energy gap, energy band; crystal, energy level, photosensitivity, photoconductivity

ABSTRACT: The present work was carried out because of the absence of complete data on the optical and photoelectric properties of HgTe-CdTe solid solutions rich in CdTe. An investigation was made of the spectral characteristics of the refractivity, absorption and photosensitivity of samples of such compounds in the range of 0.6 - 2.0 microns at 100 and 293K. The refractive index is practically independent of the wavelength in the region of transparency. The longwave region of absorption curves of samples with 25-70% HgTe is well described by the dependence $\alpha \sim \lambda^2$, which indicates free-carrier absorption. The forbidden gap

Card   1/2

ACCESSION NR: AP4012029

ΔE_{opt} and its temperature coefficient $\beta = \dfrac{\Delta (\Delta E_{opt})}{\Delta T}$ were obtained from the absorption curves. The energy gap ΔE_{pc} (pc = photoconductivity) was determined from the wavelength $\lambda_\perp$ of the spectral curves of photosensitivity. The corresponding values of r, ΔE_{opt}, ΔE_{pc} and β are given. In samples with 10-50% HgTe the photosensitivity temperature dependence differs from that in samples with 10% HgTe; this fact indicates a different mechanism of photoconductivity. Orig. art. has: 4 formulas, 5 figures, and 1 table.

ASSOCIATION: Drogoby*ts'ky*y pedinsty*tut im. Iv. Ya. Franka (Drogobych Pedagogical Institute)

SUBMITTED: 22Jun63   DATE ACQ: 14Feb64   ENCL: 00

SUB CODE: PH   NO REF SOV: 005   OTHER: 011

Card   2/2

L 38096-65   EWT(1)/EPA(s)-2/EWT(m)/EPF(n)-2/EWG(m)/T/EWP(t)/EWP(b)/EWA(h)/
EWA(s)   Pt-10/Pu-4/Peb   IJP(c)   RDW/JD/WW/JG/AT
ACCESSION NR: AP5005919   S/0185/65/010/002/0228/0229

AUTHOR: Tsyutsyura, D. I.; Shneyder, A. D.

TITLE: Certain electric properties of semiconductors of the system HgTe-CdTe
heated in mercury vapor

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 2, 1965, 228-229

TOPIC TAGS: telluride, solid solution, mercury telluride, mercury compound,
carrier mobility, Hall constant, conductivity, mercury vapor activation

ABSTRACT: The purpose of the investigation was to ascertain whether heating in
mercury vapor can increase the mobility of carriers in solid solutions of the
system HgTe-CdTe, especially with composition 90% HgTe and 10% CdTe. The method
of obtaining the material was described by one of the authors earlier (Shneyder,
with I. V. Gavrishchak, FTT v. 5, no. 4, 1208, 1963). Samples measuring 2 x 4 x
x 12 mm were placed on one end of a dismountable quartz ampoule, the other end of
which contained free mercury. The temperature of the sample was maintained con-
stant at 200C, while the temperature of the mercury end of the ampoule was varied
between 100 and 180C, thus regulating the mercury vapor pressure. One hundred

Card 1/2

L 38096-65
ACCESSION NR: AP5005919   /

hours of heating was sufficient to allow the mercury to diffuse through the entire
depth of the sample. The Hall coefficient and the conductivity were measured as
functions of the reciprocal temperature before heating in the mercury vapor and
after heating, at different mercury vapor pressures. The results show that heating
in mercury vapor always leads to a noticeable increase in carrier mobility. The
maximum mobility is attained at mercury pressure 0.7--0.9 mm Hg, in which case
values of $\sigma = 35,00$ and 120,000 could be obtained at 300 and 78K, respectively (R
-- Hall coefficient, σ -- conductivity). The results show that treatment in mer-
cury vapor is equivalent to introduction of excess cadmium in the charge. Orig.
art. has: 1 figure.

ASSOCIATION: Drogobys'kyy pedinstytut im. I. Franka
              (Drogobych Pedagogical Institute)

SUBMITTED: 19Oct64   ENCL: 00   SUB CODE: SS, EM

NR REF SOV: 001   OTHER: 003

Card 2/2